

Panasonic

DB2G42900L1

For rectification

■ Features

- Low forward voltage VF
- Forward current (Average) IF(AV) ≤ 1.0 A rectification is possible
- RoHS compliant
(EU RoHS / MSL:Level 1 compliant)

■ Marking Symbol: D5

■ Packaging

Embossed type (Thermo-compression sealing) : 1 000 pcs / reel (standard)

■ Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|-----------------------------------------------------------|--------|-----|------|------|
| Reverse Voltage ^{*1} | VR | - | 40 | V |
| Maximum Peak Reverse Voltage ^{*1} | VRM | - | 40 | V |
| Average Forward Current ^{*2,3} | IF(AV) | - | 1.0 | A |
| Average Forward Current ^{*2,4} | IF(AV) | - | 1.0 | A |
| Non-repetitive Peak Surge Forward Current ^{*1,5} | IFSM | - | 15 | A |
| Operating Junction Temperature ^{*6} | Tj | - | 150 | °C |
| Ambient Temperature | Ta | -40 | +150 | °C |
| Storage Temperature | Tstg | -55 | +150 | °C |

Note) *1: Ta = Tj = 25°C

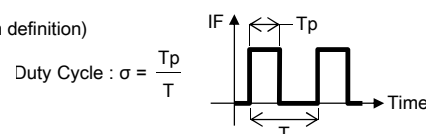
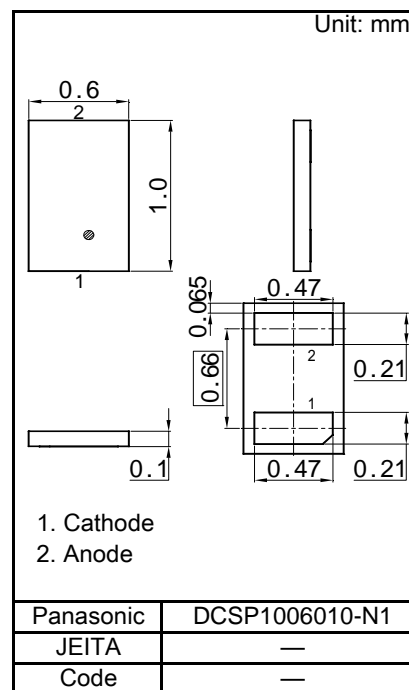
*2: Squire wave : σ = 0.5

*3: Ta ≤ 91°C, when device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).

*4: Tsp ≤ 137°C

*5: Squire wave : Tp = 5 ms

*6: Power derating is necessary so that Tj < 150°C.



■ Electrical Characteristics Ta = 25 °C ± 3 °C

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|-------------------------------------|--------|-------------------------------|-----|------|------|------|
| Forward Voltage | VF | IF = 1.0 A | - | 0.43 | 0.52 | V |
| Reverse Current | IR | VR = 40 V | - | 50 | 150 | μA |
| Terminal Capacitance | Ct | VR = 10 V, f = 1 MHz | - | 28 | - | pF |
| Reverse Recovery Time ^{*1} | trr | IF = IR = 100 mA, Irr = 10 mA | - | 8.8 | - | ns |

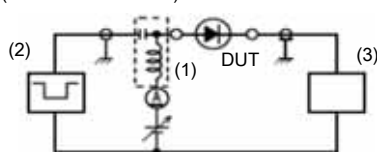
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. This product is sensitive to electric shock (static electricity, etc.).

Due attention must be paid on the charge of a human body and the leakage of current from the operating equipment.

3. *1: Measurement circuit, input pulse, output pulse for Reverse recovery time

(Measurement circuit)

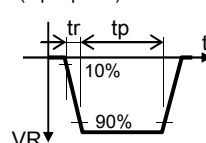


(1) Bias Insertion Unit (N-50BU)

(2) Pulse Generator (PG-10N), RS = 50 Ω

(3) Wave Form Analyzer (SAS-8130), Ri = 50 Ω

(Input pulse)

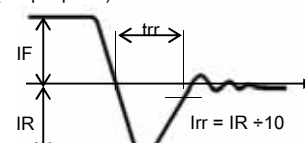


tp = 2 μs

tr = 0.35 ns

σ = 0.05

(Output pulse)



IF = 100 mA

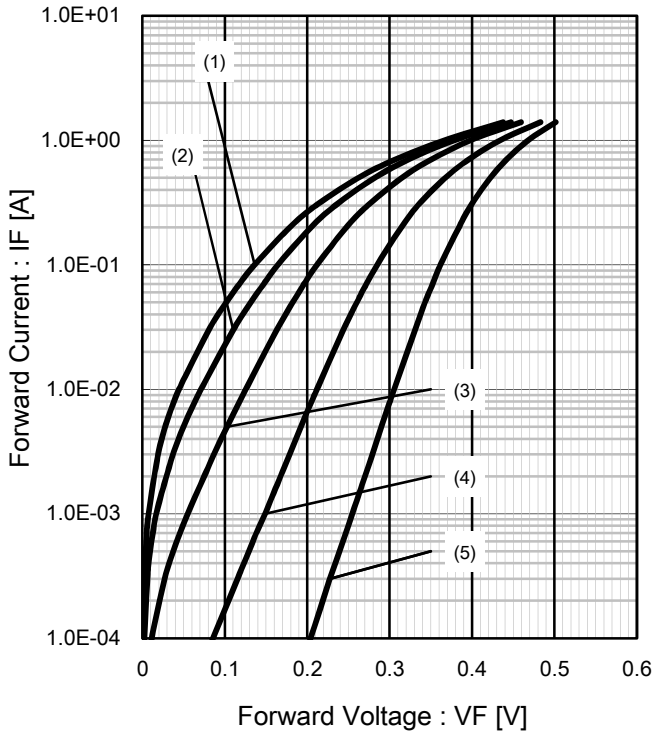
IR = 100 mA

Irr = 10 mA

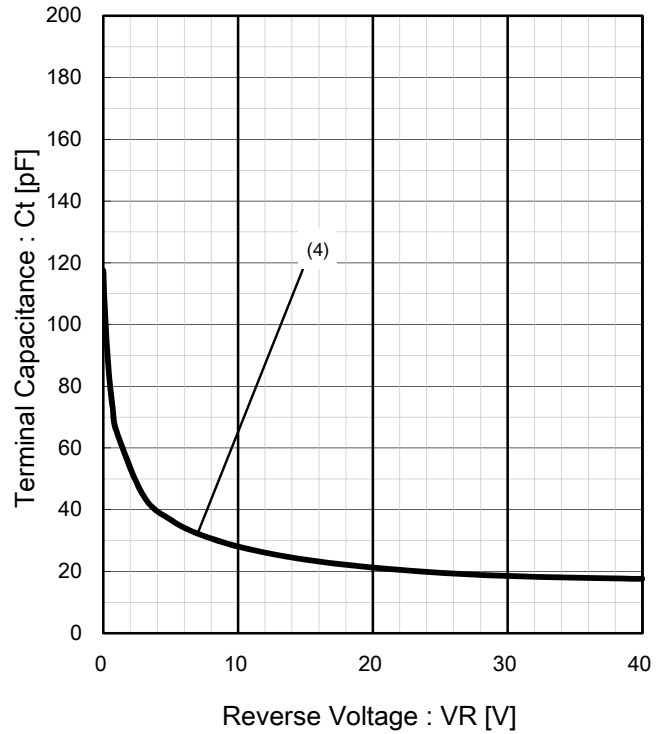


Electrical Characteristics Technical Data (Reference)

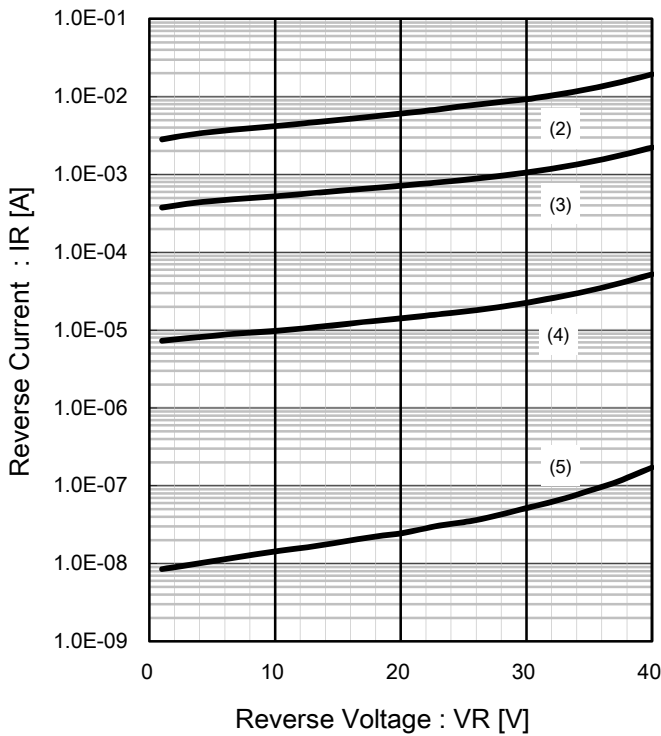
IF - VF / Typical Data



Ct - VR / Typical Data



IR - VR / Typical Data



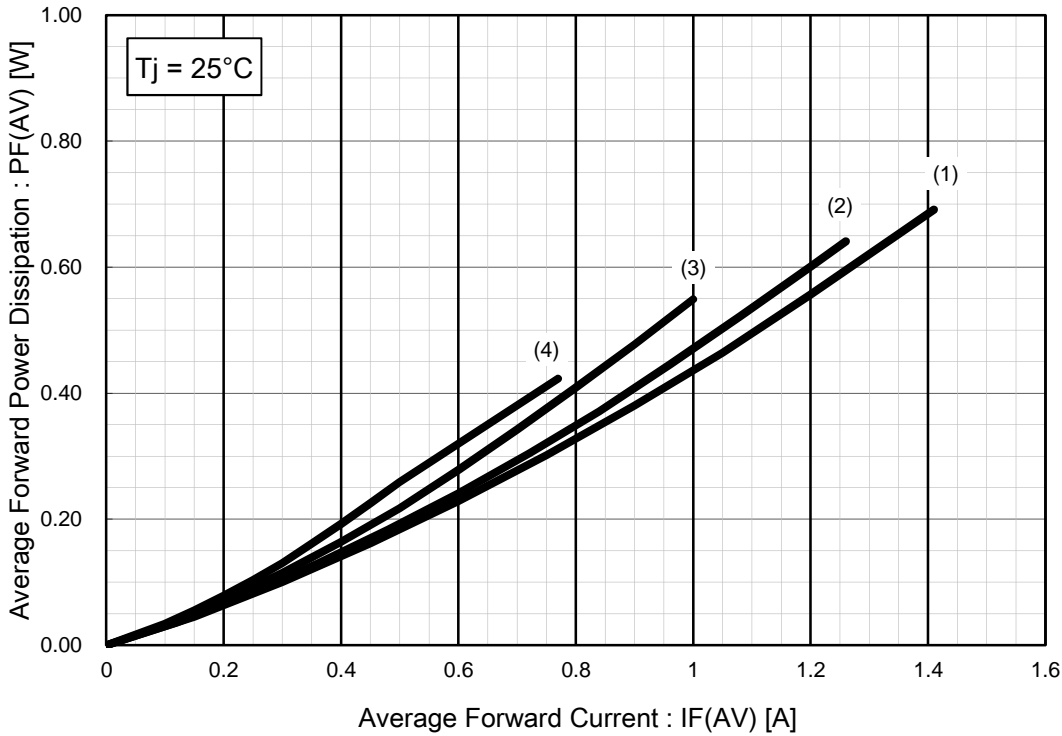
(Graph legends)

| | |
|-----|-------------|
| (1) | Ta = 150 °C |
| (2) | Ta = 125 °C |
| (3) | Ta = 85 °C |
| (4) | Ta = 25 °C |
| (5) | Ta = -40 °C |

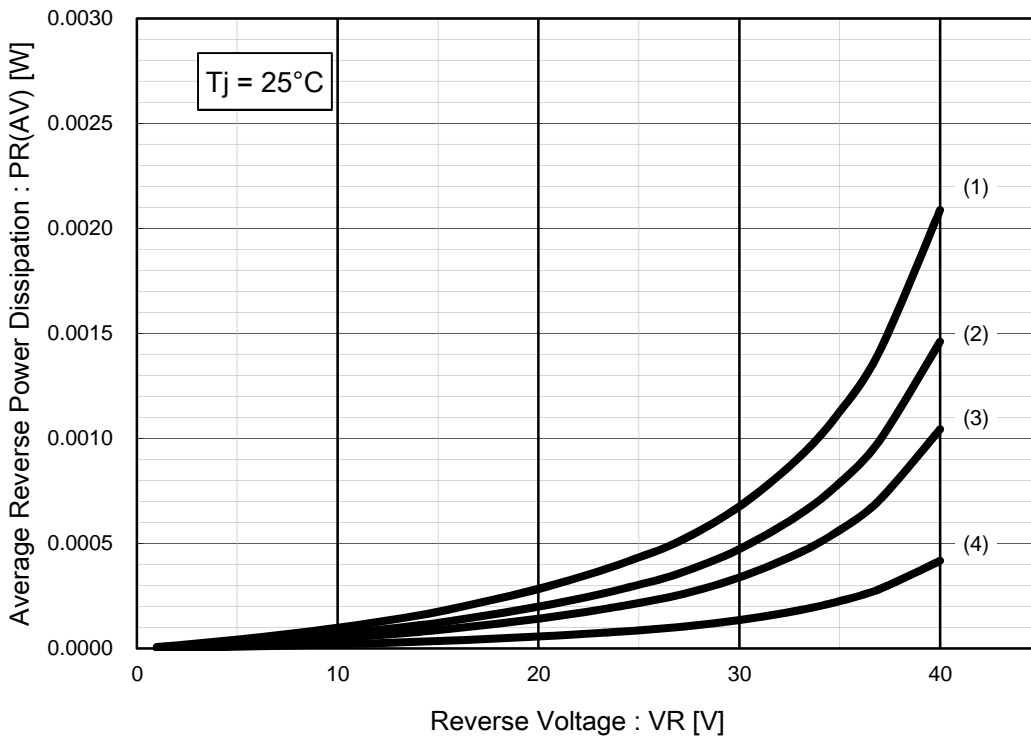


Electrical Characteristics Technical Data (Reference)

PF(AV) - IF(AV) / Typical Data



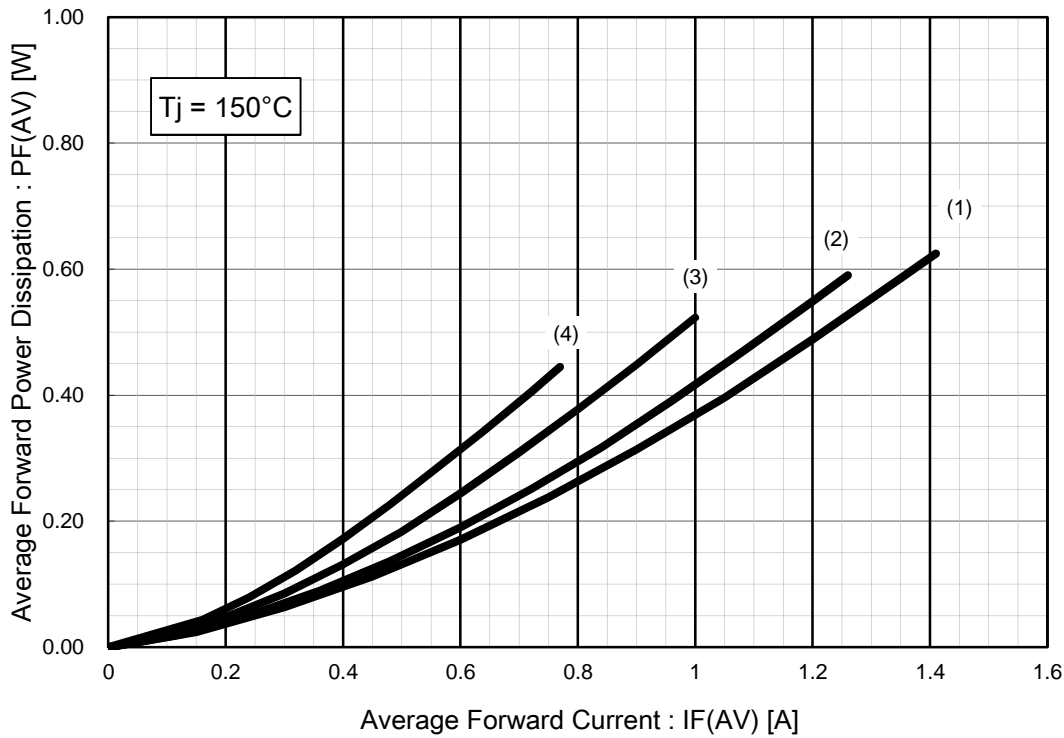
PR(AV) - VR / Typical Data



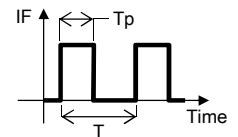


Electrical Characteristics Technical Data (Reference)

PF(AV) - IF(AV) / Typical Data



(Waveform definition)

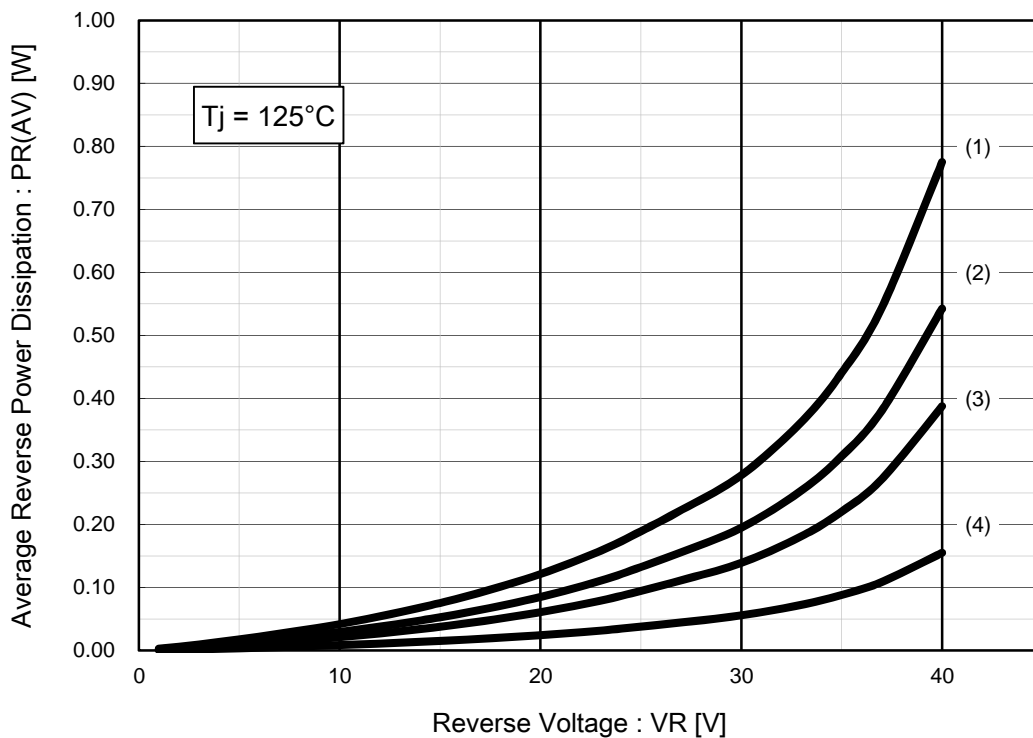


Duty Cycle : $\sigma = \frac{T_p}{T}$

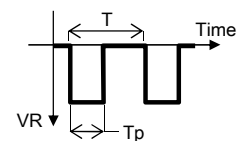
(Graph legends)

| | |
|-----|----------------|
| (1) | $\sigma = 1.0$ |
| (2) | $\sigma = 0.8$ |
| (3) | $\sigma = 0.5$ |
| (4) | $\sigma = 0.3$ |

PR(AV) - VR / Typical Data



(Waveform definition)



Duty Cycle : $\sigma = \frac{T_p}{T}$

(Graph legends)

| | |
|-----|----------------|
| (1) | $\sigma = 1.0$ |
| (2) | $\sigma = 0.7$ |
| (3) | $\sigma = 0.5$ |
| (4) | $\sigma = 0.2$ |

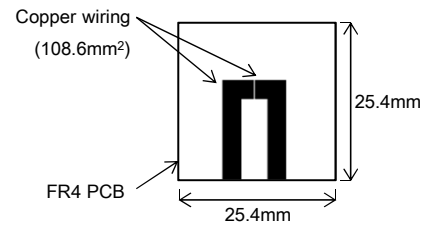
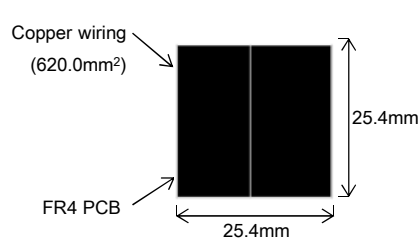


■ Thermal Characteristics

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|----------------------------------------------|----------------|-----------------------------------|-----|-----|-----|---------------|
| Thermal Resistance, Junction to Solder Point | $R_{th(j-sp)}$ | $T_a = 25^{\circ}C$, in free air | - | 20 | - | $^{\circ}C/W$ |
| Thermal Resistance, Junction to Ambient *1 | $R_{th(j-a)}$ | $T_a = 25^{\circ}C$, in free air | - | 92 | - | $^{\circ}C/W$ |
| Thermal Resistance, Junction to Ambient *2 | $R_{th(j-a)}$ | $T_a = 25^{\circ}C$, in free air | - | 170 | - | $^{\circ}C/W$ |

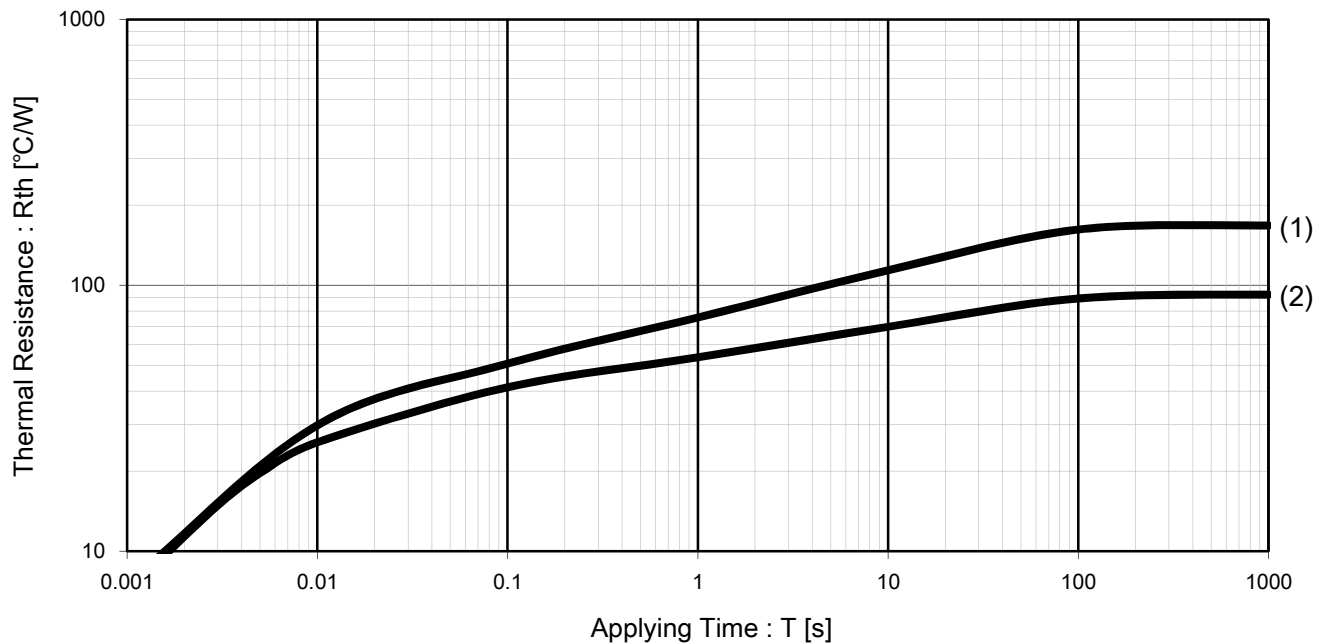
Note) *1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).
 *2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm² area, 36μm thick).

(Evaluation board outline)

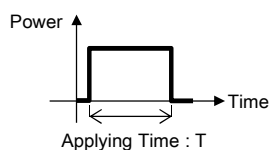


Thermal Characteristics Technical Data (Reference)

$R_{th} - T^{*1}$ / Typical Data



Note) *1: Single pulse measurement
 (Waveform definition)



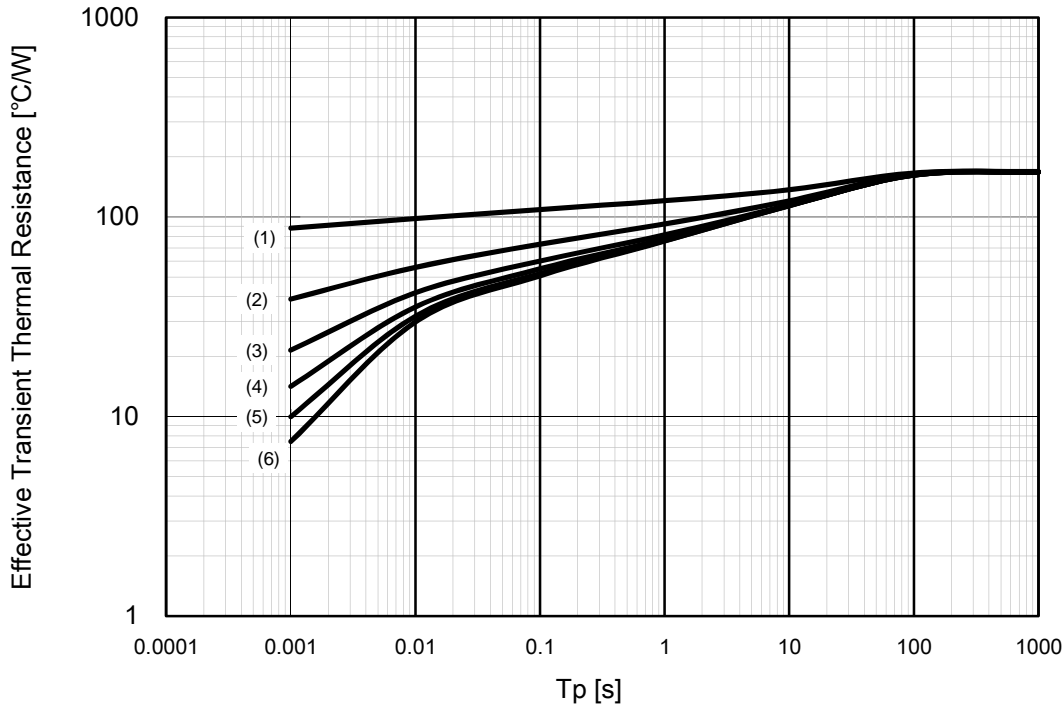
(Graph legends)

| | |
|-----|----------------------------------------------------------------------------------------------------------------|
| (1) | Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm ² area, 36μm thick). |
| (2) | Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm ² area, 36μm thick). |

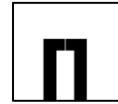


Thermal Characteristics Technical Data (Reference)

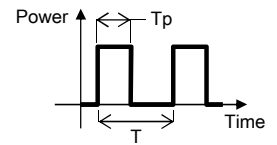
Effective Transient Thermal Resistance - T_p^{*1} / Typical Data



(Evaluation board outline)



(Waveform definition)

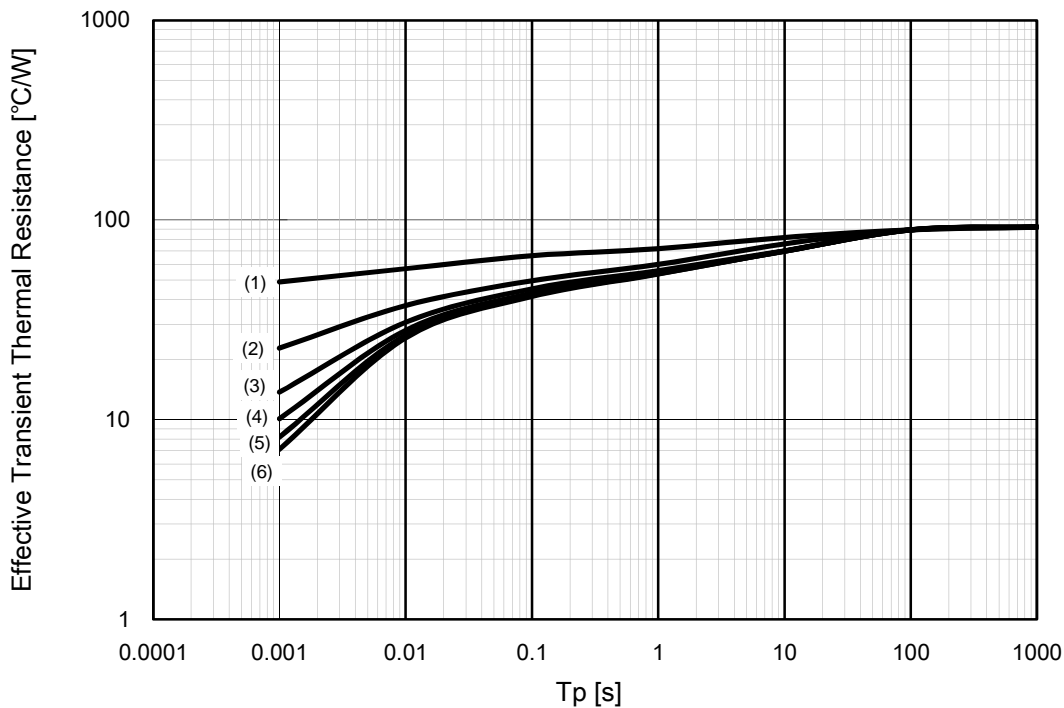


$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

(Graph legends)

| | |
|-----|-----------------|
| (1) | $\sigma = 0.5$ |
| (2) | $\sigma = 0.2$ |
| (3) | $\sigma = 0.1$ |
| (4) | $\sigma = 0.05$ |
| (5) | $\sigma = 0.02$ |
| (6) | $\sigma = 0$ |

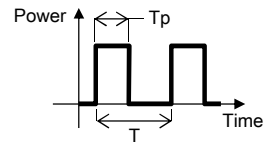
Effective Transient Thermal Resistance - T_p^{*2} / Typical Data



(Evaluation board outline)



(Waveform definition)



$$\text{Duty Cycle : } \sigma = \frac{T_p}{T}$$

(Graph legends)

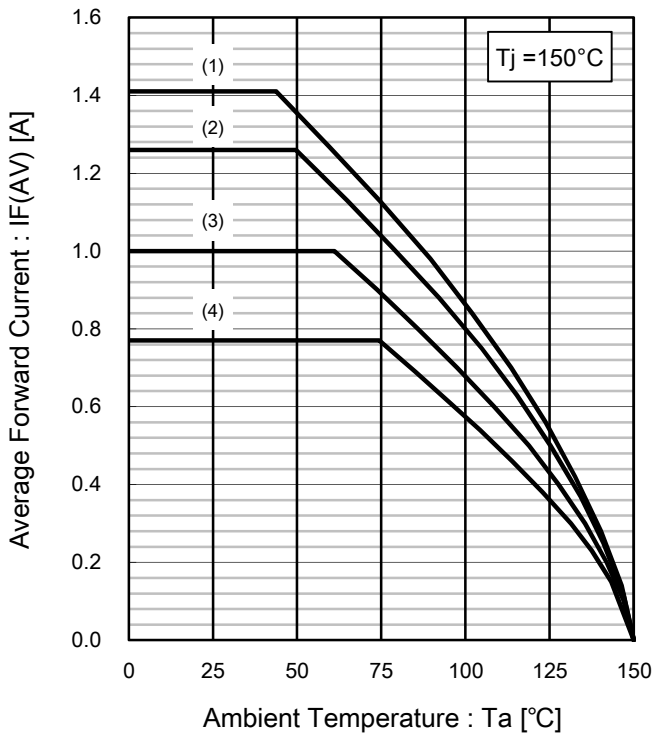
| | |
|-----|-----------------|
| (1) | $\sigma = 0.5$ |
| (2) | $\sigma = 0.2$ |
| (3) | $\sigma = 0.1$ |
| (4) | $\sigma = 0.05$ |
| (5) | $\sigma = 0.02$ |
| (6) | $\sigma = 0$ |

Note) *1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm² area, 36μm thick).
*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).

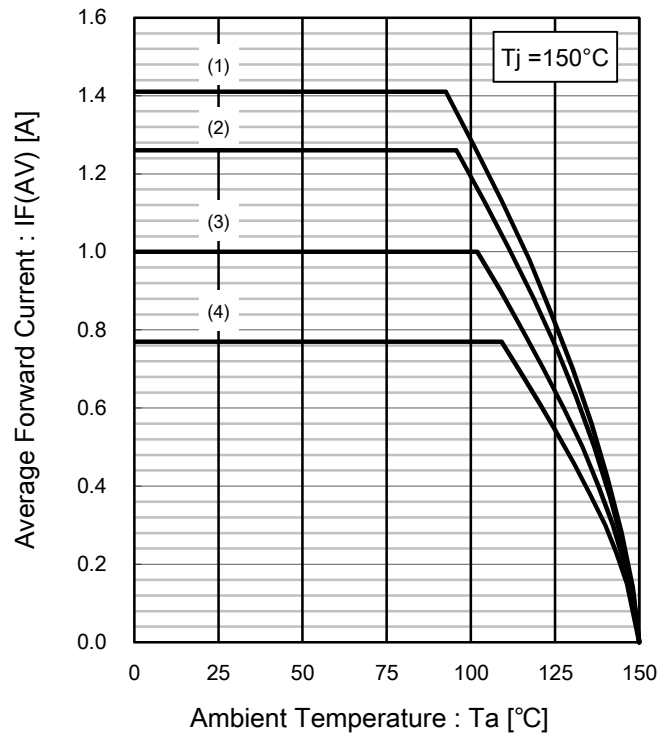


Power Derating Technical Data (Reference)

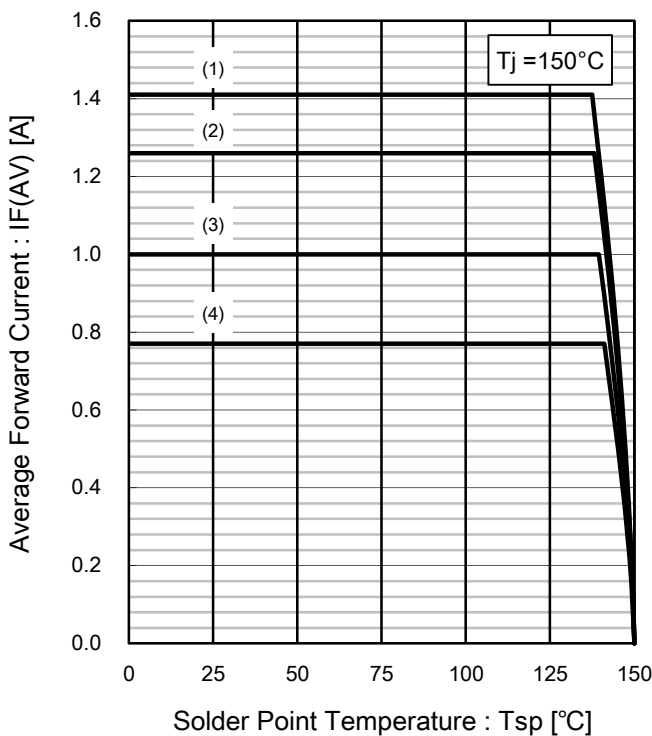
IF(AV) - Ta^{*1} / Typical Data



IF(AV) - Ta^{*2} / Typical Data



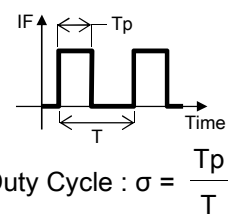
IF(AV) - Tsp / Typical Data



(Graph legends)

| | |
|-----|----------------|
| (1) | $\sigma = 1.0$ |
| (2) | $\sigma = 0.8$ |
| (3) | $\sigma = 0.5$ |
| (4) | $\sigma = 0.3$ |

(Waveform definition)



Note)

*1: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (108.6mm² area, 36μm thick).

(Evaluation board outline)



*2: Device mounted on a FR4 PCB (25.4mm×25.4mm, 1mm thick), copper wiring (620.0mm² area, 36μm thick).

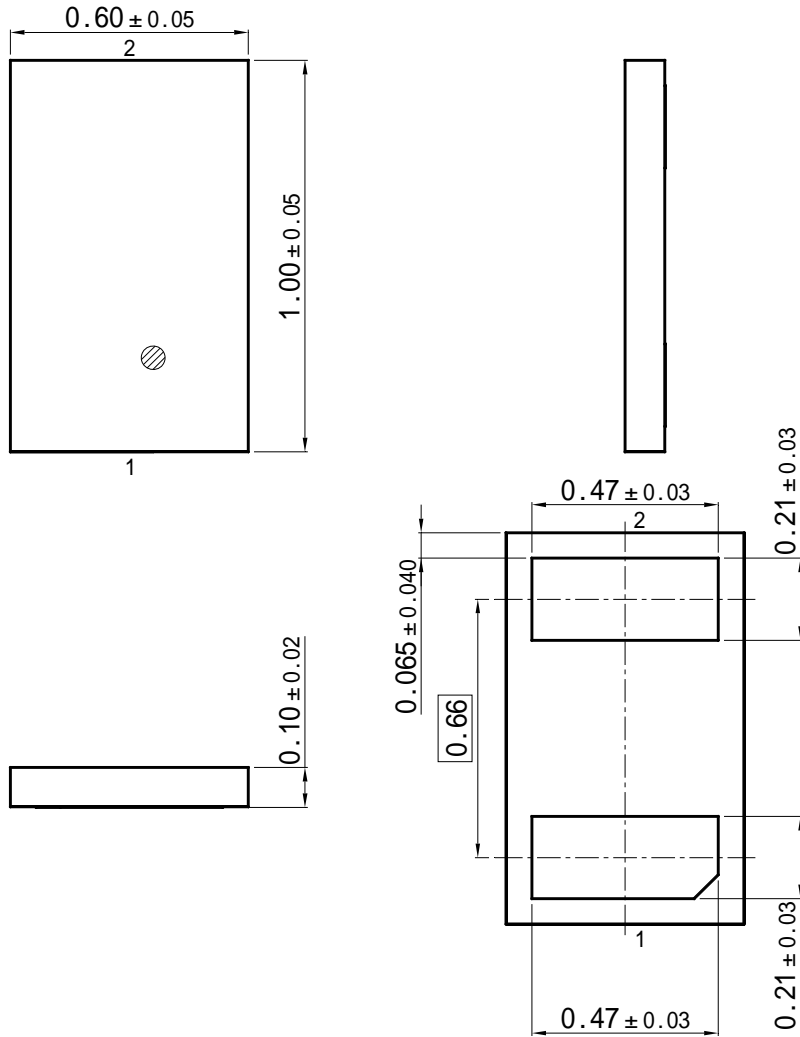
(Evaluation board outline)





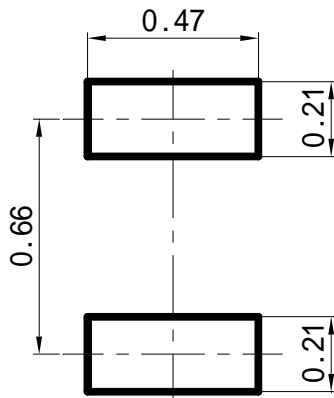
DCSP1006010-N1

Unit: mm



■ Land Pattern (Reference)

Unit: mm



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